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# Dietary adequacy of lunch meals served and consumed at Danish daycare centers

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**Background:** The official Danish dietary recommendations for daycare food are under revision due to updated Nordic Nutrient Recommendations 2012.

**Aims:** 1) To compare children’s lunch meal intake at Danish daycare centers with the suggested dietary recommendations. 2) To examine the relation between the nutritional content of the served and consumed lunch.

**Methods:** The food served for lunch and the food waste were weighed at group level for five successive days (n=40 lunch meals) in 8 daycare centers. The nutritional composition of served and consumed meals was calculated as a mean per child, using GIES (General Intake Estimation System). Ratios between food consumed and served were calculated.

**Results:** The children’s mean (SD) age were 4.8 years (0.9) and the mean group size was 26 (11). The children's energy intake was close to the recommended average, however the energy content varied considerably (784 – 2192 kJ). The macronutrient distribution of the consumed food was well predicted by the served food.

**Conclusion:** The children’s mean intake of energy and macronutrients generally complied well with the recommendations, but the variation in energy content and the energy from saturated fat exceeded the recommendations. Moreover the results indicated that the energy distribution of the served food could be an indicator of consumption, but precaution had to be taken when looking at the energy content.

Table 1: Average content of food components in served and consumed food at lunch per child in Danish daycare centers and the suggested recommendations.



Food component <sup>a</sup>	Recommendations <sup>b</sup>	Served		Intake		Ratio <sup>d</sup>
		Mean <sup>c</sup>	SD <sup>c</sup>	Mean <sup>c</sup>	SD <sup>c</sup>	
Energy (kJ) n=40	1350 (1200-1500) <sup>e</sup> / 1550 <sup>f</sup> (1400-1700) <sup>e</sup>	1953,8	±768,9	1346,2	±365,2	0,69
Protein (E%) n=40	15-17	18,1	±4,3	17,9	±4,4	0,99
Fat (E%) n=40	32-34	32,6	±8,5	32,0	±8,1	0,98
Sat. Fat (E%) n=40	<10	10,4	±5,2	10,8	±5,9	1,04
Carbohydrate (E%) n=40	49-51	45,9	±8,2	46,6	±7,8	1,02
Added sugar (E%) n=26	<5	1,0	±2,1	1,0	±2,4	1,04
Fiber (g/MJ) n=40	2-4	4,3	±1,6	4,3	±1,7	1,02
Fish (g) n=18	15 g	16,8	±29,6	11,5	±20,9	0,69
Fat (g) n=36	4,5-9 g	7,6	±8,6	5,1	±6,1	0,66
Fruit and Vegetables (g) n=39	80 g	89,0	±54,2	56,0	±29,4	0,63
Meat and eggs (g) n=32	15 g	43,5	±42,1	29,6	±25,5	0,68



<sup>a</sup> n equals the number of meals, where the food component was present. <sup>b</sup> Average intake in one meal (during a period of 10 days). <sup>c</sup> Calculated from all 40 meals. <sup>d</sup> Ratio = mean intake/mean served. <sup>e</sup> Acceptable range for energy intake in one meal. <sup>f</sup> Recommended energy intake if no morning snack is served